



Office of Data Services and Technology Spatial Data Infrastructure

A central graphic of a globe is densely packed with numerous white icons representing various digital concepts such as mobile phones, Wi-Fi signals, email, SMS, social media, and data storage. The globe is set against a background of a light gray circuit board pattern with glowing blue nodes.

Welcome



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Presentation Overview:

- Caltrans GIS background
- GIS Technology Trends
- Caltrans Geospatial Data Clearinghouse and Spatial Data Infrastructure Pilot

Transportation GIS: built on the premise of

- Good transportation decision making requiring spatial reasoning
- Accurate geographical information supports spatial reasoning
- Collecting, integrating, analyzing, and sharing of geographical information requires current GIS tools

Brief synopsis of GIS/Geospatial information at Caltrans:

- 1990s - Early adoption of digital technologies (very challenging)
- 2000s – Desktop GIS is common (but still challenging)
- 2010s – WebGIS starts to emerge (less challenging...)

Today's App Economy:

- Web driven technologies
- Technology trade-offs – Complex vs. Simple Apps
- Web connected mobile devices

The Future Caltrans Geospatial App Economy:

- Geospatial Centric Apps (Web and Mobile)
- Web Map Services (published content)
- Standardized Data Sources (e.g. Data Domains)



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Caltrans Geospatial Data Clearinghouse and Spatial Data Infrastructure Pilot

Primary Objective:

Pilot deployment of a geospatial platform of engagement for Caltrans and its transportation partners that will support transportation decision making and collaboration



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Key Project Participants:

- Sponsorship
- ESRI EEAP Team
- IT Oversight
- IT Technical Team
- Platform Test Team (Users)

High-Level Business Needs:

- Enabling of Web based collaboration
- Establishing authoritative open GIS data sources
- Enabling geospatial data discovery
- Enhancing geospatial accessibility to apps and maps

Platform Requirements:

- Enables Geospatial data discovery and collaboration
- Development and implementation of the scalable base architecture on the Caltrans network
- Provide commonly used desktop, server, cloud, and mobile mapping tools and application program interfaces (APIs)

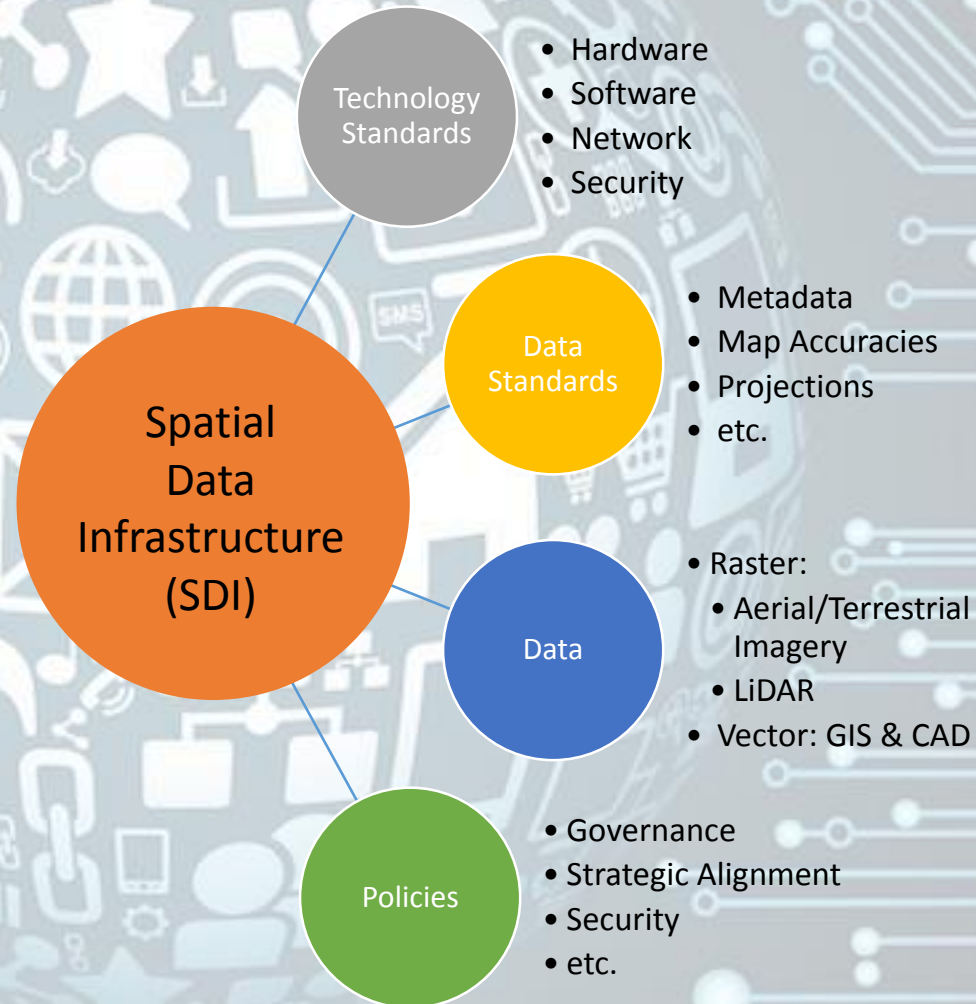
Project Benefits and Outcomes:

- Enabling Caltrans to efficiently create, manage, and share geospatial transportation data
- Promote best practices for Web and enterprise GIS technology

Project Benefits and Outcomes:

- A single Web and enterprise GIS technology platform
- Efficient use of Caltrans resources
- System Stability and Supportability
- Provides Focus and Specialization
- Provides Scalability
- Minimizes complexity in IT Project Concepts

Organizational Components





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Web Maps and Applications:

- ArcGIS Online – [Caltrans Organizational Site](#)
- Caltrans Portal for ArcGIS Server – [Portal Gallery](#)



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Caltrans Web Map Gallery

maps.arcgis.com/apps/PublicGallery/index.html?appid=1a03edbcfc454c039d09f8691424038b

Apps ★ Bookmarks TO READ Initiatives/Concepts Caltrans Geospatial Technology Transportation GIS Languages Visualization AASHTO Geospatial Organization CT Earth Transportation KB CAP Imported From Google Other bookmarks

Caltrans Web Map Gallery

Welcome to the Caltrans Online Map Gallery - a series of interactive web maps designed as a collective viewing experience of California-focused transportation themes and supporting information.

Search maps

California Aviation Facilities
Web Mapping Application by HQ_DRISI. Last Modified Aug 24, 2016.
This map displays aviation facilities across California.
(305 views)

California Rail Systems
Web Mapping Application by HQ_DRISI. Last Modified Aug 24, 2016.
This map show various rail systems and stations across California. It also includes miscellaneous data related to the rail network.
(331 views)

State Highway Improvement (STIP) & Operations and Protection (SHOPP) Transportation Improvement Projects
Web Mapping Application by HQ_DRISI. Last Modified Aug 24, 2016.
This map shows California transportation improvement projects with STIP or SHOPP funding, along with a combination of other state, federal and local funds.
(316 views)

Statewide Transportation Projects Inventory (STPI) - Caltrans District 1
Web Mapping Application by HQ_DRISI. Last Modified Aug 24, 2016.
Statewide Transportation Project Inventory (STPI) financially constrained projects obtained from all of California's 44 MPOs/RTPAs most recently updated Regional Transportation Plan (RTP) project lists.
(251 views)

Traffic Analysis - Highway Bottlenecks & Traffic Volumes
Web Mapping Application by HQ_DRISI. Last Modified Sep 7, 2016.
Bottlenecks representing line segments of heavy congestion during peak AM and PM periods and Traffic Volumes are traffic counts along the California State Highway Network.
(174 views)

Terms of Use

Disclaimer: The maps and data are made available to the public solely for informational purposes. Information provided by the Caltrans GIS Data Library is accurate to the best of our knowledge and is subject to change on a regular basis, without notice. While Caltrans makes every effort to provide useful and accurate information, we do not warrant the information to be authoritative, complete, factual, or timely. Information is provided on an "as is" and an "as available" basis. The California Department of Transportation is not liable to any party for any cost or damages, including any direct, indirect, special, incidental, or consequential damages, arising out of or in connection with the access or use of, or the inability to access or use, the Site or any of the Materials or Services described herein.

More Info:

[Caltrans Home Page](#)
[Caltrans GIS Data Library](#)



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Caltrans Clearinghouse P x


svgcesridvweb.ct.dot.ca.gov/arcgis/home/index.html

Apps ★ Bookmarks ■ TO READ ■ Initiatives/Concepts ■ Caltrans ■ Geospatial Technology ■ Transportation GIS ■ Languages ■ Visualization ■ AASHTO ■ Other bookmarks


HOME GALLERY MAP SCENE GROUPS Sign In

Clearinghouse Portal


Featured Maps and Apps




Bottlenecks AM and PM Peak Periods - 2010 through 2012



Bottlenecks for AM and PM Peak Periods - 2010 through



California Bicycle & Pedestrian Events 2003 -



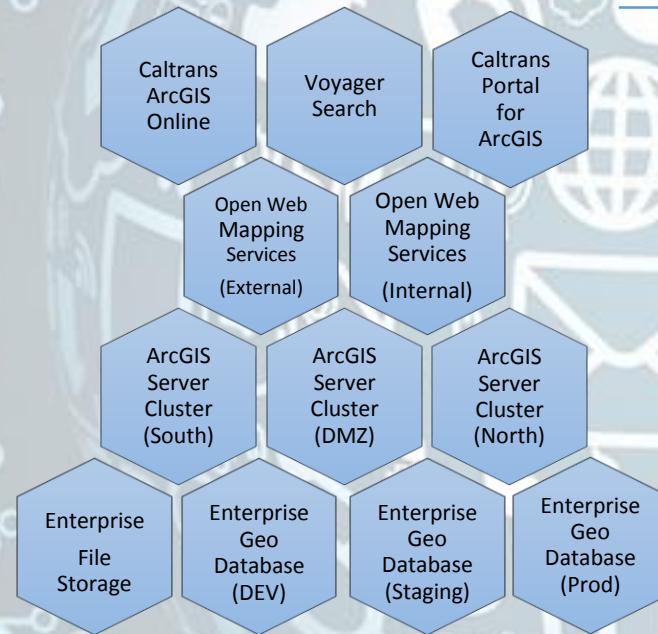
Caltrans Districts

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Enterprise GIS Technology Overview:

- ArcGIS Online and Portal for ArcGIS
- ArcGIS Server
- Enterprise Geodatabase (Oracle)
- Storage:
 - VNX for structured databases
 - Isilon for high-performance file based storage
- Voyager Search
- Feature Manipulation Engine Server (FME Server)

Caltrans SDI Technology Components



Presentation Tier

Web Services Tier

Application Tier

Data Tier

Current IT Projects with GIS Components:

- *Roads & Highways (Integrated Caltrans LRS)*
- *FRED (proposed) – Transportation Project Prioritization*
- *IMMS Upgrade – Base Map and Feature Services*
- *Seed Plant Calculator – WebApp*
- *Trucking QuickMap – Map Feature Services*
- *LD-IGR (Geo Tracking System) – Replacement of Google Base Map*
- *SMILE/POD – Prototyping for an enterprise land survey application*
- *STPI (more on this later...)*

Next Steps Post-Pilot Project:

- Final assessment and lessons learned
- Plan for production deployment based on lessons learned
- Approval for production architecture



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Spatial Data Infrastructure

Summary:

- Brief history of GIS at Caltrans
- The technology trends and a future Caltrans GeoApp Economy
- An overview of the Clearinghouse Project and Spatial Data Infrastructure (SDI)



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Up Next:

- A look at the STPI Project with Christian Bushong...